

**We claim:**

1. A mapping catheter for use in mapping cardiac electrical potentials of a patient's heart comprising:

- Sub a1*
- a) a set of electrodes;
  - b) first positioning means coupled to said set of electrodes for spacing a portion of said set of electrodes, defined as a first subset of electrodes, apart from and not in contact with a surface of said patient's heart; and
  - c) second positioning means coupled to said set of electrodes for placing a second predetermined subset of said set of electrodes into contact with a surface of said patient's heart, said second predetermined subset being different from said first subset.

2. The apparatus of claim 1 wherein said set of electrodes comprises at least twenty-four electrodes.

3. A catheter assembly for mapping the interior of a patient's heart comprising:

- a) a first set of electrode sites defining a first electrode array;
- b) said electrode array adapted to be positioned within said patient's heart with a substantial number of said electrodes not in contact with said heart; and
- c) a second set of electrode sites adapted to be located in contact with said patient's heart, said second set of electrode sites being different from said first set of electrode sites.

*Add B1*  
*Add C1*